

REMARKS

Claims 1, 2, 5 and 6 are Allowable

The Office has rejected claims 1, 2, 5 and 6 on page 14 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over United States Patent Publication No. 2002/0191541 (Buchanan et al.) in view of United States Patent No. 7,024,472 (Datta et al.). Applicants respectfully traverse the rejections.

The cited portions of Buchanan et al. and Datta et al. do not disclose or suggest the specific combination of claim 1. For example, Buchanan et al. and Datta et al. do not disclose a method comprising removing duplicate route target sets from the group of route target sets to form a reduced size of route target sets based on the route targets between duplicate route target sets being the same, as recited in claim 1. Support for this claim amendment may be found in at least paragraphs [0014] and [0026] of Applicants' application.

Buchanan et al. is directed towards a system for topology constrained routing policy provisioning. *Buchanan et al.*, paragraph [0002]. The system includes route reflectors that are routers that have information about different routes. *Buchanan et al.*, paragraph [0045]. The route reflectors provide route information such as the Route Distinguisher (RD), Route Target (RT), Site of Origin (SOO), VPN_ID, Internet Protocol Version 4 (IPv4), Prefix, NextHopInfo or the like. *Buchanan et al.*, paragraph [0047]. Remote export rules are used to perform re-advertisement of the routes to the route reflectors with optionally different NextHopInfo. *Buchanan et al.*, paragraph [0062]. This is accomplished by attaching a different Route Distinguisher (RD) to the routes in order to avoid duplication inside the route reflectors. *Buchanan et al.*, paragraph [0062]. Routes which are not accepted are discarded, such as routes from the same site. *Buchanan et al.*, paragraph [0062]. Input rules are set up so that if a site receives route information from itself, this information is discarded. *Buchanan et al.*, paragraph [0077].

Datta et al. discloses a data collection system that is used to collect information from network traffic flow on a network. *Datta et al.*, column 1, lines 6-10. Four different functional

nodes are disclosed. *Datta et al.*, column 7, lines 10-12. NARS processed by certain nodes can be formatted and stored in a database or flat file. *Datta et al.*, column 7, lines 20-24.

In contrast to claim 1, the combination of *Buchanan et al.* and *Datta et al.* does not disclose a method comprising removing duplicate route target sets from the group of route target sets to form a reduced size of route target sets based on the route targets between duplicate route target sets being the same. In *Buchanan et al.*, routes are discarded based on whether or not they come from the same site. *Buchanan et al.*, paragraph [0062]. Further, the items that are discarded in *Buchanan et al.* are not sets of route targets, but are instead the routes themselves of which the route target is but one piece of information. *Buchanan et al.*, paragraph [0062]. The system in *Buchanan et al.* actually encourages duplicate route targets by re-advertising routes with identical route targets with only the route distinguisher and NextHopInfo portions of the route information changed. *Buchanan et al.*, paragraph [0062]. *Datta et al.* was cited for the proposition of disclosing information exchange in a file format. *Office Action*, page 17. *Datta et al.* makes no mention of a method comprising removing duplicate route target sets from the group of route target sets to form a reduced size of route target sets based on the route targets between duplicate route target sets being the same. As such, *Datta et al.* fails to correct for the deficiencies noted in the primary reference of *Buchanan et al.* Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of *Buchanan et al.* and *Datta et al.* since all of the elements of claim 1 are not found in the combination of references. Hence, claim 1 is allowable.

Claims 2, 5 and 6 depend from claim 1, which Applicants have shown to be allowable. Hence, *Buchanan et al.* and *Datta et al.* fail to disclose at least one element of each of claims 2, 5 and 6. Accordingly, claims 2, 5 and 6 are also allowable, at least by virtue of their dependence from claim 1.

Further, the dependent claims recite additional features that are not disclosed by the cited references. For example, the cited portions of *Buchanan et al.* and *Datta et al.* fail to disclose a method wherein a second set of data entries identify provider edge routers corresponding to each of the customer edge routers, as recited in claim 5. Instead, *Buchanan et al.* discloses a VPN tree that may, but preferably does not, include a service provider data category. *Buchanan et al.*,

paragraph [0035]. A service provider data category disclosed in a VPN tree is not a set of data entries identifying provider edge routers corresponding to each of the customer edge routers, as set forth in claim 5. Datta et al. further fails to disclose this feature. The combination of Buchanan et al. and Datta et al. fails to disclose the aforementioned element of claim 5, and claim 5 is thus allowable for this additional reason.

Claims 3 and 4 are Allowable

The Office has rejected claims 3 and 4 on page 20 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Buchanan et al. and Datta et al. and further in view of United States Patent No. 6,909,696 (Zavgren, Jr.). Applicants respectfully traverse the rejections.

As previously stated, the cited portions of Buchanan et al. and Datta et al. do not disclose or suggest a method comprising removing duplicate route target sets from the group of route target sets to form a reduced size of route target sets based on the route targets between duplicate route target sets being the same, as recited in claim 1. Zavgren Jr. also fails to disclose this feature. Zavgren Jr. reveals a system that facilitates the visualization of a network that has multiple nodes. *Zavgren Jr.*, Abstract. However, nowhere does Zavgren Jr. disclose removing duplicate route target sets based on the route targets between duplicate route target sets being the same. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of Buchanan et al., Datta et al. and Zavgren Jr. since all of the elements of claim 1 are not found in the combination of references. Hence, Buchanan et al., Datta et al., and Zavgren Jr. fail to disclose at least one element of each of claims 3 and 4. Accordingly, claims 3 and 4 are also allowable, at least by virtue of their dependence from claim 1.

Claim 7 is Allowable

The Office has rejected claim 7 on page 23 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Buchanan et al. and Datta et al. and further in view of United States Patent Publication No. 2003/0079043 (Chang et al.). Applicants respectfully traverse the rejection.

As previously stated, the cited portions of Buchanan et al. and Datta et al. do not disclose or suggest a method comprising removing duplicate route target sets from the group of route target sets to form a reduced size of route target sets based on the route targets between duplicate route target sets being the same, as recited in claim 1. Chang et al. also fails to disclose this feature. Chang et al. is directed towards a mode of operation of a VPN service to advance a wide area promotion of business. *Chang et al.*, paragraph [0003]. However, nowhere does Chang et al. disclose removing duplicate route target sets based on the route targets between duplicate route target sets being the same. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of Buchanan et al., Datta et al. and Chang et al. since all of the elements of claim 1 are not found in the combination of references. Hence, Buchanan et al., Datta et al., and Chang et al. fail to disclose at least one element of claim 7. Accordingly, claim 7 is also allowable, at least by virtue of its dependence from claim 1.

Claim 7 is allowable for the additional reason that the combination of Buchanan et al., Datta et al. and Chang et al. fails to disclose table entries that include the associated provider edge routes. Chang et al. discloses a VPN service condition table that has rows that identify VPNs and columns that identify customer edge identifiers. *Chang et al.*, Fig. 7 and paragraph [0109]. The table entries include customer edge end points. *Chang et al.*, Fig. 7 and paragraph [0109]. Table entries that are customer edge end points are not table entries that include associated provider edge routes. For this additional reason, claim 7 is allowable.

Claims 8 and 9 are Allowable

The Office has rejected claims 8 and 9 on page 2 of the Office Action, under 35 U.S.C. § 102(a) as being anticipated by Buchanan et al. Applicants respectfully traverse the rejections.

The cited portions of Buchanan et al. fail to disclose or suggest the specific combination of claim 8. For example, the cited portions of Buchanan et al. do not disclose a system wherein the memory includes virtual routing and forwarding (VRF) to route target data mapping for each of a plurality of provider edge routers (PEs) and wherein all of the customer edge routers (CEs) with the same route target (RT) set on one PE share one VRF, as recited in claim 8. Support for this claim amendment may be found in at least paragraph [0026] of Applicants' application.

Buchanan et al. discloses a system in which any route associated with a Route Target T is distributed to every provider edge (PE) router that has a VRF table associated with the route target T. *Buchanan et al.*, paragraph [0029]. When such a route is received by a PE router, it is eligible to be installed on those of the PE's VRF tables that are associated with route target T. *Buchanan et al.*, paragraph [0029]. Rules are provided to associate a particular IPv4 route from PE-CE routing protocols with information items such as the route distinguisher (RD), route target (RT), site of origin (SOO), VPN_ID, internet protocol version 4 (IPv4), prefix, NextHopInfo or the like. *Buchanan et al.*, paragraph [0063]. Routes can have their route distinguisher (RD) and NextHopInfo changed, so as to avoid duplication, and then be re-advertised back to the route reflector. *Buchanan et al.*, paragraph [0062]. Routes that are not accepted after implementation of the rules can be discarded, for example routes from the same site are typically discarded. *Buchanan et al.*, paragraph [0063].

In contrast to claim 8, the cited portions of Buchanan et al. do not disclose a system wherein the memory includes virtual routing and forwarding (VRF) to route target data mapping for each of a plurality of provider edge routers (PEs) and wherein all of the customer edge routers (CEs) with the same route target (RT) set on one PE share one VRF. In Buchanan et al., duplicate routes to be re-advertised are avoided not by eliminating those with the same route target (RT) but instead by changing the route distinguisher (RT) and the NextHopInfo while leaving the route target (RT) the same. *Buchanan et al.*, paragraph [0062]. Although routes from the same site may be discarded, routes that have the same route target (RT) are actually added by the rules. *Buchanan et al.*, paragraphs [0077] and [0078] and Fig. 4. As such, in Buchanan et al., the VRF tables will have different routes not based on route targets (RTs), but based on other variables, such as the site from which the route information is received. All of the VRF tables in Buchanan et al. will be unique because they will be constructed based upon the particular site to which the VRF table is associated. Nowhere does Buchanan et al. disclose a system wherein all the CEs with the same RT set on one PE share one VRF, in fact, Buchanan et al. discloses the opposite. Hence, claim 8 is allowable.

Claim 9 depends from claim 8, which Applicants have shown to be allowable. Hence, Buchanan et al. fails to disclose at least one element of claim 9. Accordingly, claim 9 is also allowable, at least by virtue of its dependence from claim 8.

Claims 10, 11, 13, 18 and 19 are Allowable

The Office has rejected claims 10, 11, 13, 18 and 19 on page 2 of the Office Action, under 35 U.S.C. § 102(a) as being anticipated by Buchanan et al. Applicants respectfully traverse the rejections.

The cited portions of Buchanan et al. do not disclose or suggest the specific combination of claim 10. For example, Buchanan et al. does not disclose a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same, as recited in claim 10. Support for this claim amendment may be found in at least paragraphs [0014] and [0026] of Applicants' application.

In Buchanan, routes are discarded based on whether or not they come from the same site. *Buchanan et al.*, paragraph [0062]. Routes are not discarded based on sets of route targets. Further, the items that are discarded in Buchanan et al. are not sets of route targets, but are instead the routes themselves of which the route target is but one piece of information. *Buchanan et al.*, paragraph [0062]. The system in Buchanan et al. actually encourages duplicate route targets by re-advertising routes with identical route targets with only the route distinguisher and NextHopInfo portions of the route information changed. *Buchanan et al.*, paragraph [0062]. Nowhere does Buchanan disclose or suggest a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same. Hence, claim 10 is allowable.

Claim 10 is allowable for the additional reason that the cited portions of Buchanan et al. do not disclose a method comprising providing a set of rules regarding assignment of route targets for each of a plurality of virtual private networks. Buchanan et al. discloses a topology of a single virtual private network (VPN) according to a preferred embodiment. *Buchanan et al.*, paragraph [0015]. A VFR table of a particular site is populated only with routes that lead to other sites that have at least one VPN in common with the site so that communication between

sites which have no VPNs in common is prevented. *Buchanan et al.*, paragraph [0029]. Claim 10 is thus allowable for this additional reason.

Claims 11, 13, 18 and 19 depend from claim 10, which Applicants have shown to be allowable. Hence, *Buchanan et al.* fails to disclose at least one element of each of claims 11, 13, 18 and 19. Accordingly, claims 11, 13, 18 and 19 are also allowable, at least by virtue of their dependence from claim 10.

Further, the dependent claims recite additional features that are not disclosed by the cited references. For example, the cited portions of *Buchanan et al.* fail to disclose a method wherein a second set of data entries identify PEs corresponding to each of the CEs, as recited in claim 18. Instead, *Buchanan et al.* discloses a VPN tree that may, but preferably does not, include a service provider data category. *Buchanan et al.*, paragraph [0035]. A service provider data category disclosed in a VPN tree is not a set of data entries identifying PEs corresponding to each of the CEs, as set forth in claim 18. The cited portions of *Buchanan et al.* fail to disclose the aforementioned element of claim 18, and claim 18 is thus allowable for this additional reason.

Claim 19 is allowable for the additional reason that the cited portions of *Buchanan et al.* fail to disclose a topology type selected from a central service and hub and spoke topology types. Instead, *Buchanan et al.* discloses a hub-spoke arrangement that may be useful in the following cases: central services site, firewall site and/or the like. *Buchanan et al.*, paragraph [0053]. The central services site in *Buchanan et al.* is actually arranged as a hub-spoke arrangement and would thus use its set of rules to handle route targets to VRF mapping. The topology type would therefore be the same between the central services topology and the hub and spoke topology. For this additional reason, claim 19 is allowable.

Claims 12 and 14 are Allowable

The Office has rejected claims 12 and 14 on page 25 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over *Buchanan et al.* in view of United States Patent Publication No. 2004/0255028 (*Chu et al.*). Applicants respectfully traverse the rejections.

As previously stated, the cited portions of Buchanan et al. do not disclose or suggest a method wherein route targets are grouped into sets and where duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same, as recited in claim 10. Chu et al. also fails to disclose this feature. Chu et al. reveals a system for providing connectivity to customer sites subscribing to VPN services. Chu et al., paragraph [0001]. However, nowhere does Chu et al. disclose a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of Buchanan et al. and Chu et al. since all of the elements of claim 10 are not found in the combination of references. Hence, Buchanan et al. and Chu et al. fail to disclose at least one element of each of claims 12 and 14. Accordingly, claims 12 and 14 are also allowable, at least by virtue of their dependence from claim 10.

Claim 15 is Allowable

The Office has rejected claim 15 on page 19 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Buchanan et al. Applicants respectfully traverse the rejection.

As previously stated, the cited portions of Buchanan et al. do not disclose or suggest a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same, as recited in claim 10. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on Buchanan et al. since all of the elements of claim 10 are not found in the reference. Hence, Buchanan et al. fails to disclose at least one element claims 15. Accordingly, claims 15 is also allowable, at least by virtue of its dependence from claim 10.

Claims 16 and 17 are Allowable

The Office has rejected claims 16 and 17 on page 22 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Buchanan et al. in view of Zavgren, Jr. Applicants respectfully traverse the rejections.

As previously stated, the cited portions of Buchanan et al. do not disclose or suggest a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same, as recited in claim 10. Zavgren, Jr. also fails to disclose this feature. Zavgren Jr. reveals a system that facilitates the visualization of a network that has multiple nodes. *Zavgren Jr.*, Abstract. However, nowhere does Zavgren, Jr. disclose a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of Buchanan et al. and Zavgren, Jr. since all of the elements of claim 10 are not found in the combination of references. Hence, Buchanan et al. and Zavgren, Jr. fail to disclose at least one element of each of claims 16 and 17. Accordingly, claims 16 and 17 are also allowable, at least by virtue of their dependence from claim 10.

Claim 20 is Allowable

The Office has rejected claim 20 on page 24 of the Office Action, under 35 U.S.C. § 103(a) as being unpatentable over Buchanan et al. in view of Chang et al. Applicants respectfully traverse the rejections.

As previously stated, the cited portions of Buchanan et al. do not disclose or suggest a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same, as recited in claim 10. Chang et al. also fails to disclose this feature. Chang et al. is directed towards a mode of operation of a VPN service to advance a wide area promotion of business. *Chang et al.*, paragraph [0003]. However, nowhere does Chang et al. disclose a method wherein route targets are grouped into sets and duplicate sets of route targets are removed based on the route targets between duplicate sets of route targets being the same. Applicants respectfully submit that a *prima facie* case of obviousness does not exist based on the combination of Buchanan et al. and Chang et al. since all of the elements of claim 10 are not found in the combination of references. Hence, Buchanan et al. and Chang et al. fail to disclose at least one element of claim 20. Accordingly, claim 20 is also allowable, at least by virtue of its dependence from claim 10.

Claim 20 is allowable for the additional reason that the combination of Buchanan et al. and Chang et al. fails to disclose table entries that include the associated PEs. Chang et al. discloses a VPN service condition table that has rows that identify VPNs and columns that identify customer edge identifiers. *Chang et al.*, Fig. 7 and paragraph [0109]. The table entries include customer edge end points. *Chang et al.*, Fig. 7 and paragraph [0109]. Table entries that are customer edge end points are not table entries that include associated PEs. For this additional reason, claim 20 is allowable.

Claims 21-25 are Allowable

The Office has rejected claims 21-25 on page 2 of the Office Action, under 35 U.S.C. § 102(a) as being anticipated by Buchanan et al. Applicants respectfully traverse the rejections.

The cited portions of Buchanan et al. fail to disclose or suggest the specific combination of claim 21. For example, the cited portions of Buchanan et al. do not disclose a system wherein the memory further includes a VRF to route target data mapping for each of a plurality of PEs and wherein the CEs with the same RT set on one PE share one VRF, as recited in claim 21. Support for this claim amendment may be found in at least originally filed claim 26 of Applicants' application which has been incorporated into claim 21 to thus be rewritten into independent form.

In Buchanan et al., duplicate routes to be re-advertised are avoided not by eliminating those with the same route target (RT) but instead by changing the route distinguisher (RT) and the NextHopInfo while leaving the route target (RT) the same. *Buchanan et al.*, paragraph [0062]. Although routes from the same site may be discarded, routes that have the same route target (RT) are actually added by the rules. *Buchanan et al.*, paragraphs [0077] and [0078] and Fig. 4. As such, in Buchanan et al., the VRF tables will have different routes not based on route targets (RTs), but based on other variables, such as the site from which the route information is received. All of the VRF tables in Buchanan et al. will be unique because they will be constructed based upon the particular site to which the VRF table is associated. Nowhere does

Buchanan et al. disclose a system wherein the CEs with the same RT set on one PE share one VRF. Hence, claim 21 is allowable.

Claims 22-25 depend from claim 21, which Applicants have shown to be allowable. Hence, Buchanan et al. fails to disclose at least one element of each of claims 22-25. Accordingly, claims 22-25 are also allowable, at least by virtue of their dependence from claim 21.

Further, the dependent claims recite additional features that are not disclosed by the cited references. For example, the cited portions of Buchanan et al. fail to disclose a second set of rules to handle route targets to VRF mapping for a hub and spoke topology and a third set of rules to handle route targets to VRF mapping for a central service topology, as recited in claim 22. Instead, Buchanan et al. discloses a hub-spoke arrangement that may be useful in the following cases: central services site, firewall site and/or the like. *Buchanan et al.*, paragraph [0053]. The central services site in Buchanan et al. is actually arranged as a hub-spoke arrangement and would thus use its set of rules to handle route targets to VRF mapping. The hub-spoke arrangement and the central services site are thus one and the same in Buchanan et al. and utilize the same set of rules. For this additional reason, claim 22 is allowable.

CONCLUSION

Applicants have pointed out specific features of the claims not disclosed, suggested, or rendered obvious by the references applied in the Office Action. Accordingly, Applicants respectfully request reconsideration and withdrawal of each of the objections and rejections, as well as an indication of the allowability of each of the pending claims.

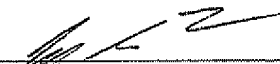
Any changes to the claims in this amendment, which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

The Examiner is invited to contact the undersigned attorney at the telephone number listed below if such a call would in any way facilitate allowance of this application.

The Commissioner is hereby authorized to charge any fees, which may be required, or credit any overpayment, to Deposit Account Number 50-2469.

Respectfully submitted,

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